

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (Currently Amended) A method of decoding a one-point algebraic geometric code of dimension k and length n , ~~in which~~ wherein, in order to identify ~~[[the]]~~ a position of ~~[[the]]~~ errors in a received word, ~~[[the]]~~ a syndromes matrix S , of size $(n - k) \times (n - k)$, is defined, of which ~~[[the]]~~ elements S_{ij} of each line I are calculated, for j between 1 and $w(I)$, wherein ~~[[the]]~~ boundary w is a decreasing function, using ~~[[the]]~~ syndrome s of the received word,

said method ~~being characterized in that it comprises~~ comprising matrix construction steps numbered by u , during which matrices S^u are constructed starting with $S^1 = S$, and ~~in that~~ wherein each matrix S^u for $u > 1$ is obtained from ~~[[the]]~~ matrix S^{u-1} by performing:

~~[[-]]~~ where appropriate, permutations on ~~[[the]]~~ columns of the matrix S^{u-1} , then

~~[[-]]~~ linear manipulations involving ~~[[the]]~~ a line of index u of the matrix so obtained,

and ~~in that~~ wherein the construction of matrices terminates when:

~~[[-]]~~ either $S^u_{uj} = 0$ for all j between 1 and $w(u)$,

~~[[-]]~~ or there is an integer $u^* \leq (u-1)$ such that $S^{u^*}_{u^*j} = 0$ for all j

between 1 and $w(u)$.

2. (Currently Amended) A method of decoding a one-point algebraic geometric code of dimension k and length n , ~~in which wherein~~, in order to identify ~~[[the]]~~ a position of ~~[[the]]~~ errors in a received word, ~~[[the]]~~ a syndromes matrix S , of size $(n - k) \times (n - k)$, is defined, of which ~~[[the]]~~ elements S_{ij} of each line i are calculated, for j between 1 and $w(i)$, wherein ~~[[the]]~~ boundary w is a decreasing function, using ~~[[the]]~~ syndrome s of the received word,

said method ~~being characterized in that it comprises~~ comprising matrix construction steps numbered by u , during which matrices S^u are constructed starting with $S^1 = S$, and ~~in that wherein~~ each matrix S^u for $u > 1$ is obtained from ~~[[the]]~~ matrix S^{u-1} by performing:

~~[[-]]~~ where appropriate, permutations on ~~[[the]]~~ columns of the matrix S^{u-1} , then

~~[[-]]~~ linear manipulations of ~~[[the]]~~ a line of index u of the matrix so obtained, and ~~in that wherein~~ the last step is:

~~[[-]]~~ either the step of number $u = \lambda$, if an integer λ is determined such that $S^{\lambda}_{\lambda j} = 0$ for all j between 1 and $w(\lambda)$,

~~[[-]]~~ or the step of number $u = (\lambda - 1)$, if an integer λ and an integer u^* are determined, with $u^* < \lambda$, such that $S^{u^*}_{u^* j} = 0$ for all j between 1 and $w(\lambda)$.

3. (Currently Amended) A decoding method according to ~~claim 1 or claim 2~~ Claims 1 or 2, ~~characterized in that the~~ which a number of lines of each matrix S^u is cut off at U_{\max} , wherein U_{\max} is ~~[[the]]~~ a smallest integer i for which $w(i)$ is less than i .

4. (Currently Amended) A decoding method according to Claims 1 or 2, characterized in that the which a number of columns of each matrix S^u is cut off at $w(u)$.

5. (Currently Amended) A decoding method according to Claims 1 or 2, characterized in that the which a number of columns of each matrix S^u is cut off at $w(\mu_D)$ for u between 1 and Duursma's minimum μ_D , and at $w(u)$ for ~~(the case arising)~~ u greater than μ_D .

6. (Currently Amended) An error correction device ~~(107)~~ for decoding a one-point algebraic geometric code of dimension k and length n , adapted to identify ~~[[the]]~~ a position of ~~[[the]]~~ errors in a received word, and comprising means for defining ~~[[the]]~~ a syndromes matrix S , of size $(n - k) \times (n - k)$, of which ~~[[the]]~~ elements S_{ij} of each line i are calculated, for j between 1 and $w(i)$, wherein ~~[[the]]~~ boundary w is a decreasing function, using ~~[[the]]~~ syndrome s of the received word,

said error correction device ~~(107) being characterized in that it~~ further ~~comprises~~ comprising means for constructing matrices S^u numbered by u , with $S^1 = S$, each matrix S^u for $u > 1$ being obtained from ~~[[the]]~~ matrix S^{u-1} by performing:

~~[[-]]~~ where appropriate, permutations on ~~[[the]]~~ columns of the matrix S^{u-1} , then

~~[[-]]~~ linear manipulations involving ~~[[the]]~~ a line of index u of the matrix so obtained,

and ~~in that it comprises~~ comprising means for stopping the construction of the matrices when:

[[-]] either $S''_{uj} = 0$ for all j between 1 and $w(u)$,

[[-]] or there is an integer $u^* \leq (u-1)$ such that $S''_{u^*j} = 0$ for all j between 1 and $w(u)$.

7. (Currently Amended) An error correction device according to ~~claim~~ Claim 6, ~~characterized in that it further comprises~~ comprising means for cutting off [[the]] a number of lines of each matrix S'' at U_{\max} , wherein U_{\max} is [[the]] a smallest integer i for which $w(i)$ is less than i .

8. (Currently Amended) An error correction device according to ~~claim~~ Claims 6 or claim 7, ~~characterized in that it further comprises~~ comprising means for cutting off [[the]] a number of columns of each matrix S'' at $w(u)$.

9. (Currently Amended) An error correction device according to ~~claim~~ Claims 6 or claim 7, ~~characterized in that it further comprises~~ comprising means for cutting off [[the]] a number of columns of each matrix S'' at $w(\mu_D)$ for u between 1 and Duursma's minimum μ_D , and at $w(u)$ for ~~(the case arising)~~ u greater than μ_D .

10. (Currently Amended) A decoder (10), ~~characterized in that it comprises~~ comprising:

[[-]] at least one error correction device according to Claims 6 or 7,
and

[[-]] at least one redundancy suppression device (108).

11. (Currently Amended) Apparatus for receiving encoded digital signals (70), characterized in that it comprises comprising a decoder according to ~~claim~~ Claim 10, and in that it comprises means (106) for demodulating [[said]] the encoded digital signals.

12. (Currently Amended) A computer system (70), characterized in that it comprises comprising a decoder according to ~~claim~~ Claim 10, and in that it further comprises comprising:

[[-]] at least one hard disk, and

[[-]] at least one means (105) for reading ~~that~~ said hard disk.

13. (Currently Amended) Non-removable data storage means, characterized in that it comprises comprising computer program code instructions for the execution of the steps of a method according to Claims 1 or 2.

14. (Currently Amended) Partially or wholly removable data storage means, characterized in that it comprises comprising computer program code instructions for the execution of the steps of a method according to Claims 1 or 2.

15. (Currently Amended) Computer program, ~~characterized in that it contains~~ containing instructions such that, when said program controls a programmable data processing device, said instructions lead to said data processing device implementing a method according to Claims 1 or 2.